WHAT IS CLAIMED IS:

1. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film detected by an electron backscatter diffraction pattern method.

2. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

3. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

4. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

5. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

6. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane

{001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

7. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the semiconductor film, not larger than 3% of a lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film as detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

8. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film

comprising silicon,

wherein the crystalline semiconductor comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

9. A transistor according to claim 1,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

10. A transistor according to claim 1,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

11. A transistor according to claim 1,

wherein the crystalline semiconductor film has a thickness in a range of

20 to 100 nm.

12. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

13. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a

surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film detected by an electron backscatter diffraction pattern method.

14. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

15. A thin film transistor comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film as detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

16. A transistor according to claim 12,

wherein the metal element has a concentration smaller than $1 \times 10^{17}/cm^3$.

17. A transistor according to claim 12,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

18. A transistor according to claim 12,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

19. A transistor according to claim 1,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

20. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

21. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane

{001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film as detected by an electron backscatter diffraction pattern method.

22. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

23. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

24. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

25. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method.

26. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle

of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

27. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film comprising silicon,

wherein the crystalline semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

28. A device according to claim 20,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

29. A device according to claim 20,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

30. A device according to claim 20,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

31. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film as detected by an electron backscatter diffraction pattern

method.

32. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film as detected by an electron backscatter diffraction pattern method.

33. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 20% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to a

surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a concentration smaller than $1 \times 10^{19}/cm^3$.

34. A semiconductor device comprising:

at least a channel forming region in a crystalline semiconductor film,

wherein the crystalline semiconductor film is formed by heating an amorphous semiconductor film comprising silicon added with a metal element,

wherein the amorphous semiconductor film comprises germanium at a concentration not smaller than 0.1 atomic % but not larger than 10 atomic %,

wherein not smaller than 5% of a lattice plane {101} of the crystalline semiconductor film has an angle of not larger than 5 degrees with respect to a surface of the crystalline semiconductor film, not larger than 3% of a lattice plane {001} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film, not larger than 5% of a lattice plane {111} of the crystalline semiconductor film has an angle of not larger than 10 degrees with respect to the surface of the crystalline semiconductor film detected by an electron backscatter diffraction pattern method,

wherein the crystalline semiconductor film comprises nitrogen and carbon each at a concentration smaller than $5 \times 10^{18}/cm^3$, and oxygen at a

concentration smaller than 1 x $10^{19}/cm^3$.

35. A device according to claim 31,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

36. A device according to claim 31,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

37. A device according to claim 31,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

38. A device according to claim 20,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

39. A transistor according to claim 2,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than 1 x $10^{17}/cm^3$.

40. A transistor according to claim 2,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

41. A transistor according to claim 2,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

42. A transistor according to claim 2,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

43. A transistor according to claim 3,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

44. A transistor according to claim 3,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

45. A transistor according to claim 3,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

46. A transistor according to claim 3,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

47. A transistor according to claim 4,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

48. A transistor according to claim 4,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

49. A transistor according to claim 4,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

50. A transistor according to claim 4,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

51. A transistor according to claim 5,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

52. A transistor according to claim 5,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

53. A transistor according to claim 5,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

54. A transistor according to claim 5,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

55. A transistor according to claim 6,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

56. A transistor according to claim 6,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

57. A transistor according to claim 6,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

58. A transistor according to claim 6,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

59. A transistor according to claim 7,

wherein the crystalline semiconductor film comprises a metal element at

a concentration smaller than 1 x $10^{17}/cm^3$.

60. A transistor according to claim 7,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

61. A transistor according to claim 7,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

62. A transistor according to claim 7,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

63. A transistor according to claim 8,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than 1 x $10^{17}/cm^3$.

64. A transistor according to claim 8,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

65. A transistor according to claim 8,

wherein the crystalline semiconductor film has a thickness in a range of

20 to 100 nm.

66. A transistor according to claim 8,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

67. A transistor according to claim 12,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

68. A transistor according to claim 13,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

69. A transistor according to claim 13,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

70. A transistor according to claim 13,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

71. A transistor according to claim 13,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

72. A transistor according to claim 14,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

73. A transistor according to claim 14,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

74. A transistor according to claim 14,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

75. A transistor according to claim 14,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

76. A transistor according to claim 15,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

77. A transistor according to claim 15,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

78. A transistor according to claim 15,

wherein the crystalline semiconductor film has a thickness in a range of

20 to 100 nm.

79. A transistor according to claim 15,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

80. A device according to claim 21,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

81. A device according to claim 21,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

82. A device according to claim 21,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

83. A device according to claim 21,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

84. A device according to claim 22,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

85. A device according to claim 22,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

86. A device according to claim 22,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

87. A device according to claim 22,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

88. A device according to claim 23,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

89. A device according to claim 23,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

90. A device according to claim 23,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

91. A device according to claim 23,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

92. A device according to claim 24,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

93. A device according to claim 24,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

94. A device according to claim 24,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

95. A device according to claim 24,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

96. A device according to claim 25,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

97. A device according to claim 25,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

98. A device according to claim 25,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

99. A device according to claim 25,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

100. A device according to claim 26,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

101. A device according to claim 26,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

102. A device according to claim 26,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

103. A device according to claim 26,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

104. A device according to claim 27,

wherein the crystalline semiconductor film comprises a metal element at a concentration smaller than $1 \times 10^{17}/cm^3$.

105. A device according to claim 27,

wherein the crystalline semiconductor film comprises at least a metal element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

106. A device according to claim 27,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

107. A device according to claim 27,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

108. A device according to claim 31,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

109. A device according to claim 32,

wherein the metal element has a concentration smaller than 1 x

$10^{17}/cm^3$.

110. A device according to claim 32,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

111. A device according to claim 32,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

112. A device according to claim 32,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

113. A device according to claim 33,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

114. A device according to claim 33,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

115. A device according to claim 33,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

116. A device according to claim 33,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

117. A device according to claim 34,

wherein the metal element has a concentration smaller than 1 x $10^{17}/cm^3$.

118. A device according to claim 34,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

119. A device according to claim 34,

wherein the crystalline semiconductor film has a thickness in a range of 20 to 100 nm.

120. A device according to claim 34,

wherein the crystalline semiconductor film comprises hydrogen or a halogen element.

121. A device according to claim 20,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

122. A device according to claim 21,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

123. A device according to claim 22,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

124. A device according to claim 23,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

125. A device according to claim 24,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector

and a rear-type projector.

126. A device according to claim 25,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

127. A device according to claim 26,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

128. A device according to claim 27,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

129. A device according to claim 31,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data

terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

130. A device according to claim 32,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

131. A device according to claim 33,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.

132. A device according to claim 34,

wherein the semiconductor device comprises one selected from the group consisting of a cell phone, a video camera, a mobile computer, a portable data terminal, a TV receiver, a portable notebook, a personal computer, a player using a recording medium recording a program, a digital camera, a front-type projector and a rear-type projector.